

BOOK REVIEW:  
AN ILLUSTRATED MOSS FLORA OF THE MARITIMES

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Robert Ireland, of the National Museum of Natural Sciences in Ottawa, has produced a most excellent flora of the mosses of the Canadian Maritimes (New Brunswick, Nova Scotia, and Prince Edward Island). This work, the culmination of comprehensive herbarium studies and more than 15 years of field experience, has been carefully prepared with an eye toward maximal usefulness. This flora should certainly serve as a stimulus for increased study of the mosses of the Maritimes; it can equally serve as such for New England. Due to the geographic proximity and similar habitats in the two regions, almost all New England mosses can be identified with Ireland's flora, which perhaps surprisingly is the best single work yet available for the identification of New England mosses.

Bryophytes are commonly excluded these days from floristic and ecological studies of the "higher" plants. This unhappy circumstance is not merely a historical artifact; consider for example the treatments of bryophytes by Sullivant included in the early editions of Gray's Manual. Rather, knowledge of bryophytes of northeastern North America (especially the effective communication of knowledge to general botanists) has not kept pace with increasing knowledge of the tracheophytes. Thus the bryophytes have acquired the reputation of being difficult to identify. There really is no other good reason to separate and exclude the bryophytes from general studies of the land flora. Recent morphological and cytological work (some of which is reviewed by Scheirer, 1980, and Paolillo, 1981) has confirmed that the mosses in particular are close phylogenetic kin to the tracheophytes. Furthermore, bryophytes are subject to factors of distribution similar to those of the tracheophytes (Crum, 1972; Schuster, 1977). As Ireland states in his introduction (p. 9): "The distribution patterns of the Maritime mosses, like the mosses throughout North America, are nearly similar to those of the

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<sup>1</sup>IRELAND, ROBERT R. 1982. *Moss Flora of the Maritime Provinces*. 738 pp. National Museum of Natural Sciences Publications in Botany, No. 13. National Museums of Canada, Ottawa. Distributed by the University of Chicago Press. (Price: \$25.00)

flowering plants. However, the small size of mosses allows them to survive in small niches. . . . Therefore bryophytes are often better indicators of an ancient climate than flowering plants." Ireland's new flora, in conjunction with the recently published moss flora of eastern North America by Crum and Anderson (1981), provides not only a means of identification, but more importantly, a concise and useful picture of moss species as biological and ecological entities. These floras provide a foundation which should allow and encourage general botanists and ecologists to direct their attention to this fascinating group of plants.

The *Moss Flora of the Maritime Provinces* includes introductory material on distribution patterns, the structure and life cycle of mosses, collecting and herbarium techniques, past collectors of Maritime mosses, and hints on identification, methods of study, and the use of keys. There is a single bracketed key to genera, with 198 leads, which is made easier to use by headings restating characters, placed before major sections. This workable generic key is especially important because Crum and Anderson's flora does not include a generic key, making that flora less useful for non-specialists.

Ireland provides descriptions of 135 genera and 381 species; 398 full-page plates, handsome and accurate line drawings grouped at the end of each genus, illustrate most of the species. The species descriptions are short, giving only diagnostic characters, and include habitat, Maritime distribution, general range, chromosome numbers (when known), and miscellaneous remarks. The habitat descriptions and remarks are particularly valuable, reflecting the extensive field studies of the author. Many bryophytes are quite specific in their environmental requirements, making knowledge of habitat an important part of quick and positive identification. The species keys and descriptions work quite well, based on the specimens I ran through as a test. Ireland makes especially good use of pseudoparaphyllia as a character in several pleurocarpous genera (which is not surprising as he has made a special study of these characters: Ireland, 1971). The flora is completed by a rather long list of excluded taxa (previously reported from the Maritime Provinces but not confirmed by Ireland), a complete glossary (mostly taken from Crum, 1976, another compact flora that can be of use in New England), and an especially helpful 17 plates illustrating terms from the glossary.

Even though New England has been rather well collected, the lack of a modern, focused synthesis of its moss flora makes it impossible to state exactly how many New England species are also found in the Maritimes. It is clear however, that the great majority of species in our flora will satisfactorily key out in the *Moss Flora of the Maritime Provinces*. The exceptions are a few species of more southerly and westerly distribution in North America that reach the limits of their range in New England, for example *Sphagnum henryense*, *Fissidens obtusifolius*, *Hyophyla involuta*, *Desmatodon porteri*, and *Bryoandersonia illecebra*. Such species are usually uncommon locally, so are unlikely to confuse a Yankee user of Ireland's flora, but it will be necessary to consult the larger flora of Crum and Anderson (1981) on occasion.

The book is printed on good paper, sturdily bound in a sewn, cloth binding. I saw no typographical errors. There is a problem in the reproduction of some plates, really my only criticism of the book. Somewhere in the production process, perhaps in the photographic reduction of the plates, fine lines were lost in some plates, particularly in the habit drawings. Hopefully this problem can be corrected in later printings. In any case, these are only minor imperfections in what, considering the low price, must be one of the best botanical bargains in years.

I strongly recommend this flora for bryologists, general botanists and naturalists, ecologists, and libraries. If you could only own one book on the Maritime and New England mosses, this is the one. Dr. Ireland is to be congratulated upon bringing such an important and useful flora to completion.

#### LITERATURE CITED

- CRUM, H. 1972. The geographic origins of the mosses of North America's eastern deciduous forest. *Journ. Hattori Bot. Lab.* **35**: 269-298.
- . 1976. Mosses of the Great Lakes forest. Rev. ed. University Herbarium, University of Michigan, Ann Arbor, Michigan.
- , & L. E. ANDERSON. 1981. Mosses of Eastern North America. 2 volumes. Columbia University Press, New York.
- IRELAND, R. R. 1971. Moss pseudoparaphyllia. *The Bryologist* **74**: 312-330.
- PAOLILLO, D. J., JR. 1981. The swimming sperms of land plants. *BioScience* **31**: 367-373.
- SCHEIRER, D. C. 1980. Differentiation of bryophyte conducting tissues: structure and histochemistry. *Bull. Torrey Bot. Club* **107**: 298-307.

SCHUSTER, R. M. 1977. Boreal Hepaticae: a manual of the liverworts of Minnesota and Adjacent Regions. J. Cramer, Vaduz. [reprint of *The American Midland Naturalist* **49** (1953): 257-684; **57** (1957): 203-256, 257-299; and **59** (1958): 257-332.]

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